CLAIMS

We claim:

1. A DNA molecule that codes for a protein of the TGF-β family comprising:

(a) the part coding for the mature protein and if necessary further functional parts of the nucleotide sequence shown in SEQ ID NO. 1;

(b) a nucleotide sequence corresponding to the sequence from (a) within the scope of the degeneracy of the genetic code;

(c) a nucleotide sequence corresponding to an allelic derivative of one of the sequences from (a) and (b);

(d) a sequence which differs from sequence (a) due to its origin from other vertebrates; or

(e) a nucleotide sequence hybridizing with one of the sequences from (a), (b), (c) or (d) provided that a DNA molecule according to (e) at least completely contains the part coding for a mature protein of the TGF-β family.

2. The DNA molecule of claim 1, further comprising a nucleic acid sequence which codes for at least a part of another protein and which is arranged in such a way that after expression a fusion protein results.

3. A vector comprising at least one copy of a DNA molecule of claim 1.

4. A host cell comprising the DNA of claim 1.

5. The host cell of claim 4, selected from the group consisting of a bacterium, a fungus, a plant and an animal cell.

6. A protein of the TGF-β family which is coded by the DNA sequence of claim 1.

7. The protein of claim 6, which comprises an amino acid sequence selected from the group consisting of the sequence of SEQ ID NO. 2; SEQ ID NO. 4, and functional parts of the sequence of SEQ ID NO. 2 or SEQ ID NO 4.

8. A chimeric protein comprising the protein of claim 6 and at least a part of another protein.

9. A heterodimeric protein comprising a monomer of the protein of claim 6 and a monomer of another protein from the superfamily with a "cysteine knot motif".

10. A process for the production of a protein comprising

a) culturing the host cell of claim 4, and t

b) obtaining the protein from the cell or/and the culture supernatant.

11. A process for the production of the heterodimeric protein of claim 9, wherein both monomers are coexpressed in a host cell.

12. A process for the production of the heterodimeric protein of claim 9, wherein a combined renaturation of inclusion bodies of both monomers is carried out.

13. A pharmaceutical composition comprising the protein of claim 6 as the active substance and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

14. The pharmaceutical composition of claim 13 for the treatment or prevention of damage to bones, cartilage, liver, connective tissue, skin, mucous membranes, endothelium, epithelium, neurones, brain, kidney or teeth, for application in dental implants, for use in wound healing or tissue regeneration processes, induction of the proliferation of precursor cells or bone marrow cells, for maintaining a state of differentiation and for the treatment of disturbances in fertility or for contraception or for the treatment of diseases concerning the metabolism.

15. The pharmaceutical composition of claim 14 for the treatment and/or prevention of diseases of the nervous system and/or for the treatment of neuropathological situations which are caused by the ageing of the nervous system.

16. The pharmaceutical composition of claim 15 for the treatment or prevention of diseases of the eye, in particular, of the neuronal layer of the retina, the cornea, the optic nerve and/or other nerves of the brain.

17. An RNA molecule which is an antisense RNA, which is complementary to a part of a DNA molecule of claim 1.

18. A ribozyme which specifically cleaves an RNA molecule which is obtained after transcription of the DNA molecule of claim 1.

19. The use of an antisense RNA of claim 17 for blocking the expression of a protein of the TGF-β family.

20. The use of a ribozyme as claimed in claim 18 for blocking the expression of a protein of the TGF-β family.

21. The use of the DNA sequence of claim 1 for the in vitro or in vivo transfection of patient cells.

22. Antibodies or antibody fragments which bind to the protein of claim 6.

23. A receptor which is specifically bound by the protein of claim 6.

added